# CASE STUDY

OcNOS Aggregation Router

## OVERVIEW

**Amplex Internet** is a telecommunications company that has a rich history dating back to the early days of the Internet. The company started out as a small Internet Service Provider (ISP) serving underserved communities when one of the owners moved to Luckey, Ohio and noticed there was no internet service available.

Since their founding, the company has seen demand grow greatly as the Internet matured. Amplex was one of the first ISPs to offer high-speed broadband Internet services to its customers. Despite its growth and success, Amplex has remained true to its roots and continues to be a family-owned and operated business, committed to providing its customers with the best possible Internet experience.

In order to accommodate their growth and to ensure the best service possible for existing customers, Amplex is constantly evaluating networking products and solutions that can deliver cost effective services without sacrificing performance or reliability. In addition, as a wireless and fiber provider with a large number of remote sites, Amplex had a complex network topology where equipment costs are a significant factor.

Through network consultancy **IP ArchiTechs** and distribution partner **EPS Global**, Amplex discovered that open networking products from **Edgecore Networks**, **UfiSpace** and **IP Infusion** are a practical and cost-effective upgrade to their existing carrier-class equipment.

## HIGHLIGHTS

The design by **IP ArchiTechs** leveraging **IP Infusion**, **Edgecore Networks** and **UfiSpace** provided a solution with the following attributes:

- Incremental migration path to a 100GB core and distribution network
- An interoperable deployment with their existing **Juniper** and **Ciena** equipment
- IP Infusion serves as a bridge between the customer edge and **netElastic** virtual Broadband Network Gateways
- The solution leveraging IP Infusion aggregation bridges the customer edge into the netElastic virtual Broadband Network Gateway
- The open routing platforms were readily available without any supply chain constraints
- Simple, all-inclusive licensing scheme

## Why IP Infusion?

> "We were looking for a lower cost alternative to our current vendor for carrier class equipment, as well as support for modern carrier network feature sets like SR-MPLS. IPI was recommended by IP ArchiTechs as a potential candidate for our networking vendor."

**– Mark Radabaugh, President of Amplex**

> "We were looking to make the conversion from a switched network, to a routed network. We needed a feature set that traditionally came with higher end routing solutions from other vendors. IP Infusion was able to provide the needed features at a lower price point, allowing for a faster ROI versus other solutions."

**– Ken Vedder, Network Engineer for Amplex**

## The Deployment

A combination of IP Infusion **OcNOS** software products deployed on open networking hardware products from Edgecore Networks and UfiSpace displaced their current carrier-class vendor products.

The network consists predominantly of UfiSpace hardware at remote sites with Edgecore at sites with higher port count requirements.

### SOFTWARE PRODUCTS

- **IP Infusion OcNOS Aggregation Router with MPLS**

### HARDWARE PRODUCTS

- **Edgecore AS5912-54X**
- **UfiSpace S9500-22XST**

In addition, the upgrade was able to support modern features, such as SR-MPLS, that historically was only available from a higher-end routing solution. Because many sites have multiple links, Amplex enabled TI-LFA Fast Reroute to ensure sub 50 millisecond failover between links to ensure service to customers would not be disrupted during a link failure.

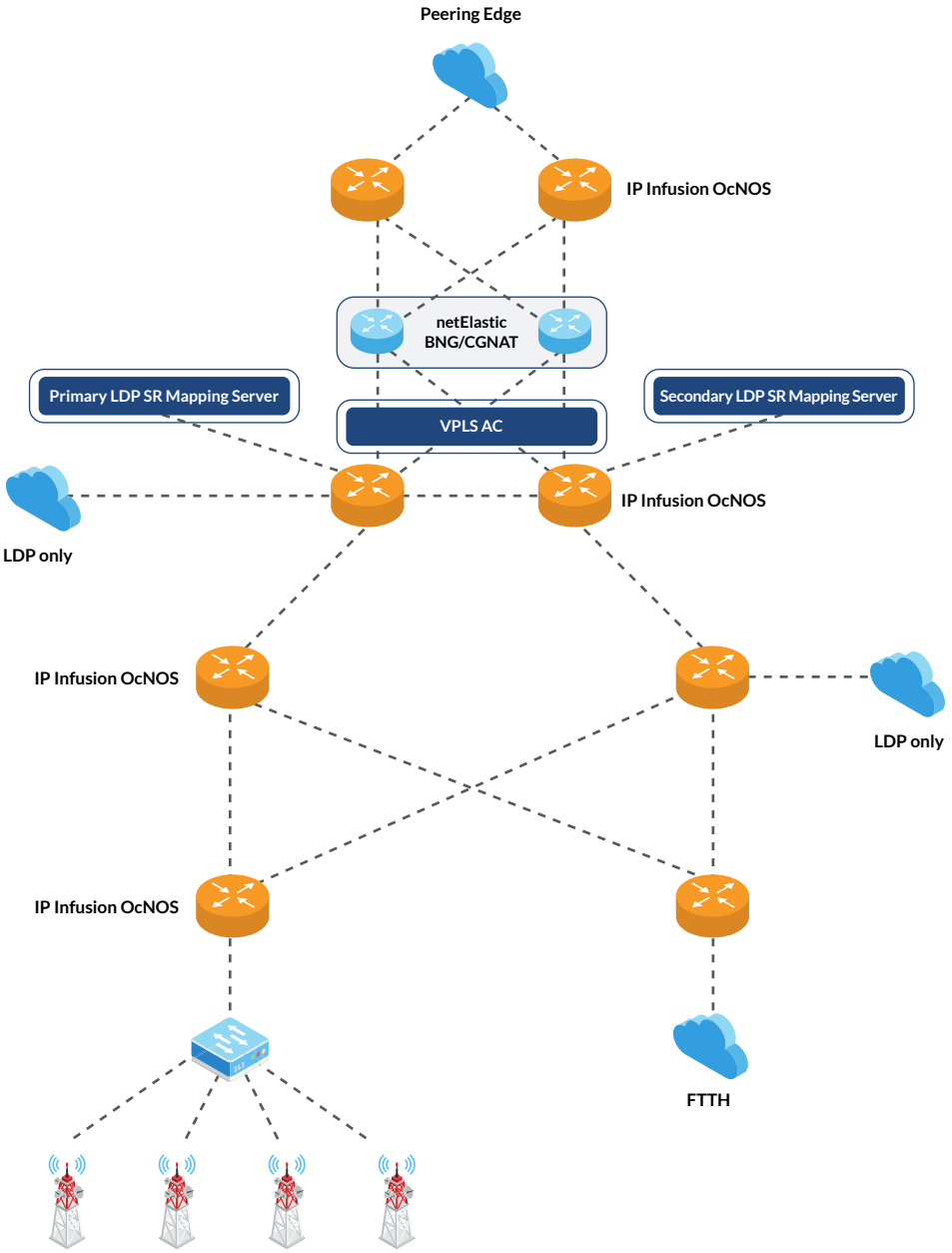
## ADDITIONAL SOFTWARE

- **netElastic virtual Broadband Network Gateways**

To deliver services to residential customers, Amplex is using Multiprotocol BGP and L2VPN/VPLS to connect customers to **netElastic** virtual Broadband Network Gateways (BNG).

Amplex is also utilizing L3VPN to bring VRFs out to sites to handle management and voice traffic. They are considering plans for seamless migration to EVPN MPLS using the same OcNOS Software, for scale and operation simplicity, in the future.

IP Infusion OcNOS serves as the bridge between the customer edge—fixed wireless or PON—and the netElastic vBNG. The majority of residential and small business customers receive service through the netElastic vBNGs. The netElastic vBNG provides a standardized method to authenticate and manage the distribution of IP services to customers regardless of the access technology in use. This greatly simplifies and standardizes the process of authenticating and assigning IP, speeds, and services to customers.



## Results

> "Completing a 'forklift upgrade' of the network is a long, expensive, and complex process and we need to look well into the future for capacity needs as we pick what vendors and hardware we want to use. **IP Infusion**, **UfiSpace**, and **Edgecore** provide a path to a 100GB core and distribution network."
>
> "While we do not need the full capacity of the equipment at this time we will not need to make major changes to hardware or software to bring our network to the capacity demanded for the foreseeable future."

**– Mark Radabaugh, President of Amplex**

> "We are continuing to use **Juniper** at our BGP edge to our upstream providers. We have had no interoperability issue with Juniper routers in this role. We will very likely move IP Infusion into this role as we reach EOL on the current Juniper solutions."
>
> "It has been refreshing to find a company that takes reported issues seriously and resolves them in a timely manner. IP Infusion's ability to replicate our network and issues in the internal IP Infusion lab and to come up with solutions has been very helpful."

**– Ken Vedder, Network Engineer for Amplex**

## Contact for More Information:

For more information on the OcNOS software, please contact sales@ipinfusion.com.

### ABOUT IP INFUSION

IP Infusion is a leading provider of open network software and solutions for carriers, service providers and data center operators. Our solutions enable network operators to disaggregate their networks to accelerate innovation, streamline operations, and reduce Total Cost of Ownership (TCO). Network OEMs may also disaggregate network devices to expedite time to market, offer comprehensive services, and achieve carrier grade robustness. IP Infusion network software platforms have a proven track record in carrier-grade open networking with over 500 customers and over 10,000 deployments. IP Infusion is headquartered in Santa Clara, Calif., and is a wholly owned and independently operated subsidiary of ACCESS CO., LTD. Additional information can be found at **http://www.ipinfusion.com**



**Phone |** +1-877-699-3267 **Email |** sales@ipinfusion.com **Web |** www.ipinfusion.com